

Sue Scott

DECEPTION CREEK
DEPRECIATION STUDY
OF
1952 BEETLE STRUCK ENGELMANN SPRUCE
AT
J. NEILS LUMBER CO.
Libby, Montana

PROGRESS REPORT NO. 3

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FOREWORD

The first depreciation study by the committee was conducted August 4, 1954, at the J. Neils Libby mill on 1952 bug-killed spruce from Pinkham Creek, Kootenai National Forest. The timber was overmature, of excellent quality and produced 12.8% of D and btr. select lumber in spite of bark beetle defect. This was substantially higher than average spruce lumber yields. Nevertheless the grade fall down percentages due to beetle damage was believed accurate for one year old beetle-killed timber. Hereafter in this report reference will be made to three different tracts for comparative purposes viz. Pinkham Creek study, Deception Creek Study Area I, Deception Creek Study Area II.

Deception Creek Areas I and II

This area containing 8 to 10 acres is located in the head of Deception Creek on the Kootenai National Forest in Sec. 22, T. 34 N., R. 31 W. It was selected by representatives of the J. Neils Lumber Company, Kootenai National Forest, and the Forest Insect Laboratory. The tract was divided into two equal parts. Each contained 75 beetle struck dead spruce trees with a gross volume of approximately 47,000 feet Scribner log scale. These two areas are referred to in this study as Deception Creek Study Area I and II. In general the spruce timber on the Deception Creek area was considered more nearly of regional average quality than the Pinkham Creek study logs.

Objectives. The Deception Creek depreciation study was made to show grade recoveries for 2 year beetle struck spruce timber. In detail the objectives were:

1. Determine grade recovery for 1952 beetle killed trees logged in the summer of 1953, dry decked at Libby and cut in the spring or summer of 1954.
2. Determine grade recovery of similar or check trees left standing in the woods and logged and milled summer of 1954 in order to get comparison of depreciation between decked and standing timber.
3. Obtain final dry surfaced grade on a portion of lumber resulting from these studies.

Silvicultural Character of the Stand

Stand Composition. The stand composition was principally spruce with a small amount of alpine fir.

Age. The stand was 200 to 275 years of age as compared to 250 to 300 years for the Pinkham Creek study timber.

Stocking. The stand on a volume basis was not as well stocked as the Pinkham Creek area and contained only 12 thousand feet per acre compared to 25,000 feet per acre on Pinkham Creek.

Site. The stand was classified as a medium site, whereas Pinkham Creek study logs came from a good site according to forest survey standards.

Exposure and Slope. The exposure was to the south. The slope was gentle - no slope over 10%.

Tree Quality

Clear Logs. Only 4 trees of a total of 150 trees on the study area had one surface clear butt log. Hence only 3% of the volume in the study was from trees having one or more clear logs contrasted to 37% for the Pinkham Creek study timber.

Size of Limbs. 28.2% of the total volume was from trees that were classified as fine-limbed trees (1/2 inch and less in diameter).

65.9% of the total volume was from trees having medium-sized limbs (1/2 to 2 inches in diameter); 5.7% of the total volume was from trees having coarse limbs (2 inches and larger).

Volume of Average Tree. The average gross volume per tree in this sample was 630 board feet Scribner; the average sized tree was 24 inches d.b.h. and contained 5 logs. The average tree studied on the Pinkham Creek area was 28 inches d.b.h., 6 logs and contained 1050 feet gross log scale.

Condition of the Stand as of August 6, 1953

The condition of the stand on this study area was as follows:

1. Sixty to seventy percent by volume of stand was infested.
2. A small percentage of trees infested were strip or partial attacks.
3. Woodpecker work was light contrasted to Pinkham Creek where woodpecker work was substantially greater.

4. Seventy percent of trees by number were infested with ambrosia beetles.
5. Forty percent of the trees were infested with wood borers, but the damage was usually confined to the first 8 or 10 feet of the tree, resulting in a minimum lumber depreciation.
6. About 35% of the trees (by number) had cast half or more of their needles compared to the Pinkham Creek study trees where approximately 50% of the trees had lost half or more of their needles.

Logging

Deception Creek Area I was logged the latter part of August 1953 and dry decked at the Libby Mill. The mill test for these logs was made July 3, 1954. Deception Creek Area II was logged the latter part of August 1954 and milled October 2, 1954. Trees were cut into long logs transported to Libby by truck.

Mill Studies

Deception Creek Study I.

These logs were milled July 3, 1954. Lumber tally was compiled for each log. To do this the mill ran only test logs. One single-cut bank head-rig sawed the logs. The gang and resaw were not operated. The instructions to scalers, sawmill men, graders and tallymen were the same as for the depreciation study of logs from the Pinkham Creek area in 1953, with the following exceptions. In order to identify boards from individual logs, the boards were marked with color corresponding to the log number. On the green chain boards were given a final dry grade as nearly as possible - all defects due to spruce bark beetles considered. Approximately one-third or 12,854 feet of the lumber from Deception Creek Study I was dry kilned, surfaced and regraded.

Deception Creek Study II.

These logs were milled at Libby on October 2, 1954. The mill cut only the test logs on this date. To do this, one head saw and one gang saw were operated. In this test the lumber tally by logs was not made. Graders attempted to give a final dry grade to the lumber on the green chain with bug and all defects considered. In Table II lumber grade recoveries for this run of logs are shown under grade recovery system B. Hence they can be compared with recovery B for the other two studies since grading was done exactly on the same basis. Mr. Griffin of the J. Neils Lumber Company and Al McGraw of the U. S. Forest Service scaled on the mill log deck and Holman and Peterson did the lumber grading for both studies of Deception Creek logs.

Table I. Comparison of Normal and Beetle Defect in Spruce Logs from Pinkham Creek and Deception Creek Study Areas.

Study Area	Short Logs	Cull Logs	Defect		
	Per M Gross Scale		Normal	Bug	Total
	Number	%	%	%	%
Pinkham Creek	3.8	8.0	-	-	24.6
Deception Creek I	7.0	5.4	12.5	16.6	29.3
Deception Creek II	6.6	8.3	12.8	19.4	31.2

Table II. Comparison of Overrun over Net Mill Deck Scale of Spruce Logs from Pinkham Creek and Deception Creek Study Areas. ^{1/}

Study Area	3 Common & Better	5 Common & Better
	%	%
Pinkham Creek	-1.1	43.7
Deception Creek I	6.0	47.7
Deception Creek II	4.4	45.4

^{1/} Based on grade recovery B in all three studies.

Table III. Comparison of Lumber Grade Recoveries and Estimated Average Lumber Selling Values from Pinkham Creek and Deception Creek Study Areas.

Grade Recovery System	Select D and Better Feet		%	Common				Total 3 and Better		4		5		Totals 5 and Better Feet	Average ^{4/} Value per M ft. \$
				1 & 2		3									
				Feet	%	Feet	%	Feet	%	Feet	%	Feet	%		
Pinkham Creek Area															
A <u>1/</u>			23.7		17.5		33.8		75.0		17.3		7.7		95.60
B <u>2/</u>			12.8		16.8		39.2		68.8		21.8		9.4		84.03
Deception Creek Area I															
A <u>1/</u>	1,950		5.3	15,060	41.3	13,985	38.4	30,995	85.0	4,042	11.1	1,413	3.9	36,450	89.24
B <u>2/</u>	633		1.7	9,823	27.1	13,931	38.4	24,387	67.2	8,287	22.8	3,610	10.0	36,284	77.48
C <u>3/</u>			2.0		13.9		56.5		72.4		22.0		5.6	35,123	75.03
Deception Creek Area II															
B <u>2/</u>	534		1.2	12,233	28.6	15,806	36.9	28,573	66.7	9,975	23.2	4,346	10.1	42,894	77.74

1/ Lumber given final dry grade no bug defects considered but including normal defect.

2/ Lumber given final dry grade with bug and all defects considered.

3/ Lumber given final dry surfaced grade by running 12,854 feet of lumber from Area I through dry kiln and planer.

4/ Based on average for sales reported by Western Pine Association for first quarter of 1954.

Highlights of the Study

As would be expected, the greatest grade fall down occurred in the select grades in all three studies. Some facts pertaining to only the Deception Creek logs are as follows:

1. Spruce logged in August 1953 from 1952 beetle struck dead trees and dry decked at Libby overwinter and milled July 3, 1954, showed about the same deterioration as spruce logged in August 1954 from 1952 beetle struck dead trees, decked at Libby and milled October 2, 1954.
2. Fall down in value because of shrinkage and grade depreciation due to bug defects amounted to 20.7%. Of this figure 3.2% was due to shrinkage.
3. Value depreciation is probably somewhat high because the lumber sample studied through the kiln and planer to final dry surface grade contained a smaller volume of 5 common lumber and a greater volume of 1 and 2 common than the study average for lumber from Deception Creek Area I. However, this may be offset by unforeseeable footage losses in heavy slabs and edgings that the sawyer unconsciously made on the bug logs because of their ratty appearance.
4. Cull logs having a gross scale of 1670 feet on the mill deck yielded 1823 feet of 5 common and better lumber having an average selling value of \$65 per M.
5. Lumber recovered from trees classed as fine limbed (limbs next to bole less than 1/2" diameter) was worth \$5.17 per M more than lumber from trees classed as medium limbed (limbs next to bole 1/2" to 2" diameter).
6. Lumber recovered from trees 12" to 20" d.b.h. was similar in value with lumber from trees larger than 20" d.b.h. - lumber from the latter being worth only \$1.18 per M more.